**Comparison of the Development of Renewable Energy between Japan and Germany**

Your Name (First M. Last)

School or Institution Name (University at Place or Town, State)

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For many years the world has been dependent on the fossil fuels to generate energy, however, in today's world, it is becoming problematic to use them for the energy needs. The reason is that fossil fuels take ages to be produced and the energy produced from them is not renewable, so depending upon them we cannot survive for a longer period of time. Another reason to not use this resource is that they produce heavy pollutants in the environment. This is the reason the world needs to shift towards the resources that are environmentally friendly, and also replenishable resources, such a solar, nuclear, and wind energy. This energy cannot be drained and is constantly renewed. In 1960s-1980s Germany and Japan have inspected a new energy strategy of viable hastened modification, they extended nuclear power, modernized productions, and stimulated efficacy to counter uncertainties of oil deliveries. However during 1990s Germany expanded in wind and solar, while Japan became the world's leading power in nuclear energy production. This divergence in their paths is much more than a theoretical problem and to understand that we need to look into the matter closely.

When It comes to consuming energy Japan is the fourth largest country in the world, though its population only occupies 2.1% of the world. Japan has been using fossil fuel energy for many years, the oil is imported from UAE, Saudi Arabia, Iran, and Kuwait. However, in recent years, people have become more concerned about environmental issues and climate change. Regarding climate change and environmental issues, Japan launched an energy project for the use of renewable energy sources that would reduce the release of carbon dioxide gas. One of the reactions to the 1970s oil calamity was a struggle to progress in other sources of energy (Moe, 2011). Today only 1.3 percent of the total energy usage of Japan is dependent on renewable energy resources. This current rate of renewable energy usage is still low, but the country is planning to increase the development of energy through renewable sources. Solar is one of the most promising sources of energy that can be renewed. It is used for the solar Thermal heating and the Photovoltaic (PV) for electricity. Japan is developing in the advancement of PV and is leading the world Photovoltaic market. There are a lot of benefits attached to the use of PV. It is environment-friendly, low operation cost, highly reliable, and lower cost of construction. In the world, a total of 45 percent of the PV cells are formed in Japan. For the purpose of promoting PV in the household, the Japanese government proposes subventions for fitting charges. The use of PV is prevalent for the houses, most of the solar-thermal systems are fitted in the hospitals and communal institutes. As Japan mends the charge and effectiveness of these solar equipment, the country can then ship these systems to the whole world for the advantage of all countries, and the Japanese budget. In contrast to Japan, Germany has gone through a turbulent time in solar power, since the country's renewable energy act in the year 2000. German corporations were prominent in the solar power technology, however, in 2012 there was a collapse and many of them had to shut down. Despite the fact that Germany is one of the countries that have the least sunlight hours, it is one of the major solar power manufacturers round the world. It has a mounted ability of 43 gigawatts in the year 2017. It had over 1.6 million installed solar collections that were 10 percent of the world's installed capacity in the year 2017. In the first half of the year 2018, these solar panels produced more than 7 percent of the total production of the country, an of the renewable shares it made about 39% according to BDEW. Its worldwide contribution to producing solar power was 2 percent. With a net production of 6.7 (TWh) in July 2017, solar power made a new monthly production record in the country and added about 15% to the German power mix. It was more than the production of nuclear energy. Solar panel s accounted for more than 40% o the production of the company at the peak hours of sunlight and the usage of energy. The government’s yearly development aim to inflexibly launch solar power as core support of Germany's power system is 2.5 GW.

The past of the nuclear projects in Japan and Germany can be traced back in 1960s when both the countries operated with American manufacturers and the local industries to build their first nuclear reactors. Major impacts in the history of German energy strategies have, on the nuclear side (Renn & Marshall, 2016).

Nuclear power required the deployment of the RD and D spending and the political support that they got during the 1970s oil crisis. However, for the new nuclear connections, this did not have many practical consequences. During the 1990s, Germany did not officially changed its nuclear power strategy and did not attach new NPPs to the network. It sustained dropping the public RD and D energy expenditure (Cherp, Vinichenko, Jewell, Suzuki & Antal, 2017). Without building new reactors the local nuclear tools makers hunted agreements overseas. Siemens that was involved in the manufacture of all German nuclear reactors traded its reactor corporate to French Framatome in 2011 proclaimed the termination of its nuclear accomplishments. However, in Japan, fifteen new nuclear reactors amplified national sustenance of nuclear power. The Japanese government overpowered the resistance of the locals to the new nuclear energy, by increasing monitoring support to the sitting NPPs. As a consequence of the German Red-green alliance government, the policies of the two countries diverged further. The stiffness between the agendas of these coal and nuclear reactor had already started during the 1970s, over the competition for base-load power. During that time the dropping electricity bills did not permit for the growth of the coal and the nuclear programs at the same time. About 2002, Greens and SPD assigned a law barring manufacture of new NPPs and restraining the lifespan of current reactors to Thirty-two years averagely.

In the year 2000, Japan manufactures five more factors, yet the portion of nuclear power in the electricity of the country was reduced to 26% by 2010. Japan also helped to build the factors in South Korea and the business is flourishing globally. The new national energy strategy of Japan aimed at a rise in the production of nuclear power.

Just like nuclear, wind technology developed exterior of Germany and Japan. Germany sustained study into wind power in the 1970s and 80s, but it unsuccessful to yield a profitablly feasible project and finished the task. During 1990, Germany approved a Feeding-law (StrEG). It was initially planned to profit a trivial hydropower plant owners, but unexpectedly it leads to the 100 times rise in the wind power. This increase in the growth of wind power was based on the Danish technology. Subsequently, many producers entered the market and in the initial 2000s, the wind turbine business of Germany had turned into the second highest in the domain. However, Japan did not back the study in wind energy. The reason is that the technical circumstances in Japan are more perplexing than in Germany. Nevertheless, in the 1990, Japan came up with the technology the fiscal measures that were supporting the wind power. However, the results were not similar to those in Germany. During the mid of the 1990s Danish Via,]stas mounted their main viable wind turbines in Japan but the growth in the arcade was no the same as in Germany. The difference in wind placement between Japan and Germany has sustained to increase. Japan's calculated wind power placement for 2030 is 4.5 times greater than in 2010 yet less than half of Germany's capability today.

Both countries worked with officials to raise domestic stream, restrain demand, or otherwise lessen the susceptibility of energy structures. Five mechanisms worked behind the differences between both the countries. The quest of the safe supply and demand of both countries resulted in the difference of the strategies regarding the renewable energy projects during 1970 and 1980s.

**References**

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